Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

Coral Reef Resilience and Social Vulnerability to Climate Change in the U.S.-affiliated Pacific Islands

1.2. Summary description of the data:

This dataset results from an analysis of exposure, resilience, and social vulnerability to climate change threats for the coral reefs of the U.S.-affiliated Pacific Islands. Standard methodologies were applied to assess ecological resilience and social vulnerability of communities surveyed by the NOAA National Coral Reef Monitoring Program (NCRMP) in the Pacific. The analysis focuses primarily on increases in ocean temperatures and the impact of coral bleaching on the U.S.'s Pacific coral reefs and the communities that depend on them. Findings from the analysis are presented in a publication series, Coral Reef Resilience and Social Vulnerability to Climate Change, for the main Hawaiian Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

The coral reef resilience indices include 7 ecological factors and temperature variability. The ecological data were derived from NCRMP datasets from 2013 to 2015---including coral demographic surveys (coral diversity, coral disease, juvenile coral density, bleaching resistant corals), reef fish surveys (herbivorous fish biomass, fishing depletion), and photoquadrat surveys (macroalgal cover)---with factor selection and calculation following McClanahan et al. (2012) and Maynard et al. (2015). Temperature variability data are from Heron et al. (2016). The 8 factors were normalized and combined to derive total resilience, bleaching resistance, coral competitiveness and other stressors. All social vulnerability data were derived from the U.S. Census Bureau's American Community Survey (ACS), analyzed following Kleiber et al. (2018). Social vulnerability indices include housing characteristics, labor force, personal disruption, population composition, and poverty. Exposure data presented in the publication series are directly from van Hooidonk et al. (2016) and are not included with this dataset.

The geographic data file to plot the ecological data generated from the analysis are included with this dataset. The social data can be plotted using the TIGER Line shapefiles for county subdivisions from the U.S. Census Bureau.

1.3. Is this a one-time data collection, or an ongoing series of measurements?
One-time data collection

1.4. Actual or planned temporal coverage of the data:
2013 to 2015, 2006 to 2010

1.5. Actual or planned geographic coverage of the data:
W: 144.561723, E: -154.745865, N: 28.523088, S: -14.615052
This work covers the National Coral Reef Monitoring Program Pacific survey domain, including the Hawaiian Archipelago, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, Rose Atoll, Swains Atoll and the Pacific Remote Island Areas.

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Table (digital)

1.7. Data collection method(s):
(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:
Annette M DesRochers

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:

2.4. E-mail address:
annette.desrochers@noaa.gov

2.5. Phone number:
(808)725-5461

3. Responsible Party for Data Management
Program Managers, or their designee, shall be responsible for assuring the proper management of

the data produced by their Program. Please indicate the responsible party below.

3.1. Name:
Thomas Oliver

3.2. Title:
Data Steward

4. Resources
Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?
Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):
Unknown

5. Data Lineage and Quality
NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible
(describe or provide URL of description):
Lineage Statement:
In this analysis, we report distinct factors associated with climate exposure, ecological resilience, and social vulnerability, and then aggregate normalized factors in each category to report an overall exposure, resilience, or social vulnerability metric.

Process Steps:
- 2018-01-01 00:00:00 - Ecological: Select ecological resilience factors for contribution to aggregate index. (Citation: Spatial Prioritization under Resilience-based Management: Evaluating Trade-offs among Prioritization Strategies)
- 2018-01-01 00:00:00 - Ecological: Normalize included factors, using 5th and 95th quantile. (Citation: Spatial Prioritization under Resilience-based Management: Evaluating Trade-offs among Prioritization Strategies)
- 2020-01-01 00:00:00 - Ecological: Aggregate selected factors to generate resilience index by summing across all normalized factors, and re-normalizing. (Citation: Spatial Prioritization under Resilience-based Management: Evaluating Trade-offs among Prioritization Strategies)
- Ecological: Plot the data by joining the ClimateVulnerabilityAnalysisv1.5_2020.csv (with land masses removed) data file to the 6-km buffered sector shapefile on the ' Benthic_Sector' and 'sectrnm' fields, respectively. The 6-km buffered sectors shapefile used to map the data is zipped. The sectors extend 6 km beyond the shoreline to visualize the data in the brochures. The zip file contains the required files that comprise a shapefile, including .shp (main file that stores the feature

geometry), .shx (index file that stores the index of the feature geometry, and .dbf (dBASE table that stores the attribute information of features). Additional files provided with the shapefile include .prj (stores the coordinate system information), . sbn and .sbx (the 2 files that store the spatial index of the features), .xml (metadata for ArcGIS—stores information about the shapefile), and the optional .cpg (specifies the codepage for identifying the characterset to be used). The additional and optional files were all autogenerated by ArcGIS. When viewing the shapefile in any ArcGIS application, you will only see one file representing the shapefile; use Windows Explorer to view all the files associated with the shapefile.
- 2018-01-01 00:00:00 - Social: Select social metrics for inclusion into each index. (Citation: Kleiber, D., D. Kotowicz, and J. Hospital. 2018. Applying national community social vulnerability indicators to fishing communities in the Pacific Island Region. NOAA Tech. Memo. NMFS-PIFSC-65, 63 p.)
- 2018-01-01 00:00:00 - Social: Run principal components analysis (PCA), to weight distinct metrics' contributions to eventual index and to calculate index values. (Citation: Kleiber, D., D. Kotowicz, and J. Hospital. 2018. Applying national community social vulnerability indicators to fishing communities in the Pacific Island Region. NOAA Tech. Memo. NMFS-PIFSC-65, 63 p.)
- 2018-01-01 00:00:00 - Social: Convert numeric index results into binned data using mean and standard deviations as breaks along continuous scale. (Citation: Kleiber, D., D. Kotowicz, and J. Hospital. 2018. Applying national community social vulnerability indicators to fishing communities in the Pacific Island Region. NOAA Tech. Memo. NMFS-PIFSC-65, 63 p.)
- 2018-01-01 00:00:00 - Social: Generate aggregate social vulnerability metric by counting the number of the 5 component indices that rate high vulnerability (x > Mean+1SD) in a given geography. (Citation: Kleiber, D., D. Kotowicz, and J. Hospital. 2018. Applying national community social vulnerability indicators to fishing communities in the Pacific Island Region. NOAA Tech. Memo. NMFS-PIFSC-65, 63 p.)
- Social: Plot data by joining social vulnerability data file to U.S. Census TIGER/Line shapefile for County Subdivisions. The GEO_IDS field in the social data file joins to the GEOID in the TIGER Line shapefiles. (Citation: TIGER/Line® Shapefiles: County Subdivisions for American Samoa, Commonwealth of the Northern Mariana Islands, Guam, and Hawaii)

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):
Both the NOAA National Coral Reef Monitoring Program (NCRMP) and the U.S. Census Bureau American Community Survey (ACS) run thorough quality control procedures described in their respective surveys. Our analysis was reviewed by all co-authors, their respective Division chiefs, and NOAA Fisheries technical and editorial review by the Pacific Islands Fisheries Science Center.

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:
- 1.7. Data collection method(s)

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

https://www.fisheries.noaa.gov/inport/item/59258

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

Yes

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:
National Centers for Environmental Information - Silver Spring, Maryland (NCEI-MD)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:
https://accession.nodc.noaa.gov/0211010
https://accession.nodc.noaa.gov/0211010
https://accession.nodc.noaa.gov/0211010
https://accession.nodc.noaa.gov/0211010

7.3. Data access methods or services offered:
Data can be accessed online via the NOAA National Centers for Environmental Information (NCEI) Ocean Archive.

7.4. Approximate delay between data collection and dissemination:
Unknown

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:
(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)
NCEI-MD

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):
Pacific Islands Fisheries Science Center - Honolulu, HI

8.3. Approximate delay between data collection and submission to an archive facility:
Unknown

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?
Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection
NOAA IRC and NOAA Fisheries ITS resources and assets.

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.